

1. A system, comprising:

a graphical user interface (GUI) connected to an input/output device of a computer system;

one or more test instruments producing a set of electrical signals;

a probe card having a plurality of probe needles used for measuring electronic characteristics of each of a plurality of devices on a semiconductor wafer, each device having a plurality of cells, each cell having a set of bond pads;

a matrix switch; and

an interface conduit electrically connecting the one or more test instruments, the computer, the probe card, and the matrix switch together, the semiconductor wafer moving so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.

2. The system of claim 1 wherein a user selects a test configuration by interfacing the matrix switch through the GUI.

3. The system of claim 2 wherein the user selects either an automatic test mode or a manual test mode of the semiconductor wafer, the automatic test modes allows the user to select devices for testing.

4. The system of claim 3 wherein the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

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5. The system of claim 4 wherein the probe card transmits a set of electrical signals from each test instrument through the probe needles to each set of bond pads and generating a test result for each device that is displayed graphically on the display.

6. The system of claim 5 wherein the test instruments include:

- a pulse generator; and
- a parametric analyzer.

7. The system of claim 1 wherein the testing includes measuring a silicon band gap voltage.

8. The system of claim 1 wherein the testing includes measuring a capacitance.

9. A method, comprising:

selecting a test configuration through a graphical user interface (GUI) connected to an input/output (I/O) device of a computer; and

measuring a set of electrical characteristics of each of
5 a plurality of devices on a semiconductor wafer selected for testing, the probe card having a plurality of probe needles, each device having a plurality of cells, each cell having a set of bond pads, the semiconductor wafer moving so that the probe needles measure the electrical characteristics of each
10 cell for each device selected for testing.

10. The method of claim 9, further comprising sending a signal to activate a plurality of test instruments.

15 11. The method of claim 10, further comprising determining if the plurality of test instruments are electrically connected.

12. The method of claim 11, further comprising
20 designating if testing is an automatic test mode or a manual test mode, the automatic test mode includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

13. The method of claim 12, generating an output file for all devices tested.

5 14. The method of claim 13, further comprising graphing data in the output file on a display.

15. The method of claim 14 wherein the plurality of test instruments include:

10 a pulse generator; and
a parametric analyzer.

16. The method of claim 1 wherein the testing includes measuring a silicon band gap voltage.

15 17. The method of claim 1 wherein the testing includes measuring a capacitance.

18. An apparatus for testing devices on a semiconductor
20 wafer using a graphical interface (GUI) comprising:
a memory that stores executable instructions; and
a processor that executes the instructions to:
select a test configuration using the GUI; and

measure a set of electrical characteristics of each device selected for testing, the probe card having a plurality of probe needles, each device having a plurality of cells, each cell having a set of bond pads, the semiconductor wafer moving so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.

10 19. The apparatus of claim 18, further comprising instructions that cause the machine to send a signal to activate a plurality of test instruments.

15 20. The apparatus of claim 19, further comprising instructions that cause the machine to determine if the plurality of test instruments are electrically connected.

20 21. The apparatus of claim 20, further comprising instructions that cause the machine to designate if testing is an automatic test mode or a manual test mode, the automatic test includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

22. The apparatus of claim 21, further comprising instructions that cause the machine to:

generate data in an output file for all devices tested;

and

5 graph data in the output file on a display.

23. The apparatus of claim 18 wherein the testing includes measuring a silicon band gap voltage.

10 24. The apparatus of claim 18 wherein the testing includes measuring a capacitance.

25. An article comprising a machine-readable medium that stores executable instructions for testing devices on a

15 semiconductor wafer, the instructions causing a machine to:

select a test configuration using a graphical user interface (GUI); and

measure a set of electrical characteristics of each device selected for testing, the probe card having a plurality

20 of probe needles, each device having a plurality of cells, each cell having a set of bond pads, the semiconductor wafer moving so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.

26. The article of claim 25, further comprising instructions that cause the machine to send a signal to activate a plurality of test instruments.

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27. The article of claim 26, further comprising instructions that cause the machine to determine if the plurality of test instruments are electrically connected.

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28. The article of claim 27, further comprising instructions that cause the machine to designate if testing is an automatic test mode or a manual test mode, the automatic test mode includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

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29. The article of claim 28, further comprising instructions that cause the machine to:

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generate data in an output file for all devices tested;
and

graph data in the output file on a display.

30. The article of claim 29 wherein the plurality of
test instruments include:

a pulse generator; and

a parametric analyzer.

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31. The article of claim 25 wherein the testing includes
measuring a silicon band gap voltage.

32. The article of claim 25 wherein the testing includes
10 measuring a capacitance.

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